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(71) Applicants: UNIVERSITY OF WASHINGTON [US/US]; Suite 200, 1107 N.E. 45th Street, Seattle, WA 98105 (US). ALCON LABORATORIES, INC. [US/US]; 6201 South Freeway, Fort Worth, TX 76134 (US).		Published <i>Without international search report and to be republished upon receipt of that report.</i>	
(72) Inventors: HOFFMAN, Allan, S.; 4528 West Laurel Drive N.E., Seattle, WA 98105 (US). CHEN, Guohua; Apartment #203, 5263 15th Avenue N.E., Seattle, WA 98105 (US). YORK, Billie, M.; 6532 Castle Pines, Fort Worth, TX 76132 (US).			
(74) Agents: HERMANN, Karl, R. et al.; Seed and Berry, 6300 Columbia Center, 701 Fifth Avenue, Seattle, WA 98104-7092 (US).			

(54) Title: BLOCK AND GRAFT COPOLYMERS AND METHODS RELATING THERETO

(57) Abstract

There is disclosed block and graft copolymers which, in one embodiment, contain both a temperature-sensitive polymer component and a pH-sensitive polymer component, and the use of such copolymers for topical drug delivery to a treatment area. The block and graft copolymers may be physically mixed with one or more drugs to form a copolymer-drug mixture. This mixture may be applied to the treatment as solid particles suspended in a pharmaceutically acceptable carrier, or as a liquid which gels upon contact with the treatment area. Upon contact with the treatment area, the pH-sensitive polymer component hydrates and swells, thereby causing release of the drug from the mixture. In addition, such hydration and swelling causes the pH-sensitive polymer component to adhere to the tissue of the treatment area, thus prolonging contact time. The temperature-sensitive polymer component resists hydration and swelling of the mixture, thereby imparting a sustained and controlled release of the drug to the treatment area. In another embodiment of this invention, bloc and graft copolymers, and hydrogels thereof, are disclosed having broad industrial applicability.

